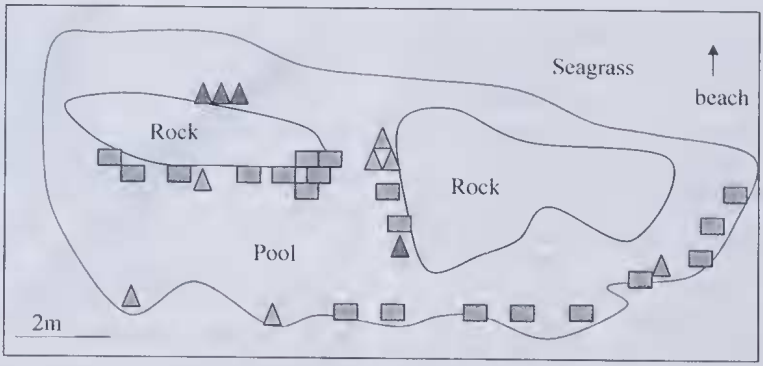

Fig. 6. Rockpool showing position of established *Caulocystis uvifera* (rectangles) with epiphytic *Sphacelaria biradiata* and position of relocated *C. uvifera* (triangles).

No spores were found, nor were gametes or propagules found throughout the rest of the water sample, although plants with sporangia (Fig. 4), gametangia (Fig. 5) and propagules occurred on plants of *S. biradiata* epiphytic on *C. uvifera* growing naturally in the study pool.

Although this study was essentially unsuccessful as all but one transplanted *C. uvifera* were washed away, it did show that the use of natural substrata for recruitment studies of epiphytes is possible. Few recruitment studies have been conducted in Victoria, with none on epiphytes.

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Studies on Victorian bryophytes 7. The genus *Triandrophyllum* Fulf. & Hatch.

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Abstract
Triandrophyllum subtrifidum (Hook.f. & Tayl.) Fulf. & Hatch. var. *subtrifidum* is known in Victoria from a single site, on the West Tyers River. The species is described and illustrated, and its conservation status is discussed. (*The Victorian Naturalist* **124** (1), 2007, 48-51)

Introduction

The genus *Triandrophyllum* was erected by Fulford and Hatcher (1959, 1962) as a segregate from *Isolembidium* R.M.Schust., and placed in the family Herbertaceae. The genus at present comprises five species, of which only *Triandrophyllum subtrifidum* (Hook.f. & Tayl.) Fulf. & Hatch. var. *subtrifidum* is known to occur in Australia. It has been reported from one locality on Mt Wellington in Tasmania and recently from one locality on the West Tyers River in Victoria. The type was collected by JD Hooker from an unknown locality in Tasmania, possibly Mt Wellington. The distribution extends to New Zealand (Allison and Child 1975; Glenny 1998) and to much of Andean South America, where *Triandrophyllum subtrifidum* (Hook.f. & Tayl.) Fulf. & Hatch. var. *trifidum* (Gott.) Solari also occurs (Solari 1973; Engel 1978).

Description

Triandrophyllum subtrifidum (Hook.f. & Tayl.) Fulf. & Hatch. var. *subtrifidum*

Plants yellowish green, in turfs, shoots mostly unbranched, to about 40 mm long (Fig. 1). **Leaves** to about 1.5 mm long, imbricate to widely separated, bent strongly

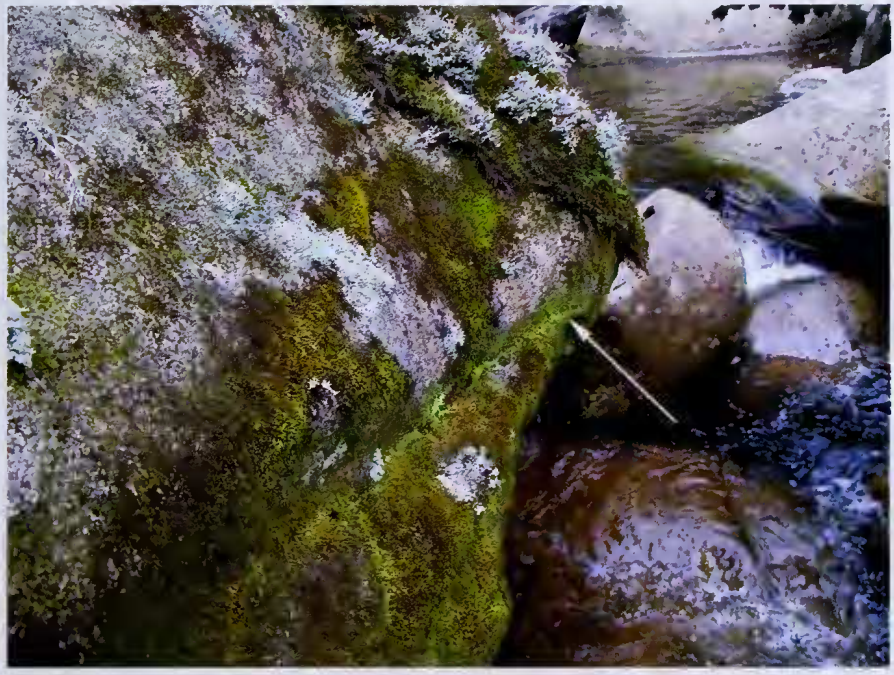

Fig. 2. Habitat of *Triandrophyllum subtrifidum* var. *subtrifidum* (arrowed) in the West Tyers River.

to the ventral side of the stem, incubous, becoming larger towards the shoot apex; deeply divided into 2 or 3 lobes, the number of lobes apparently random; cells mostly isodiametric or slightly longer than wide, typically 25–35 µm wide in mid-leaf but longer (to about 2 x 1) in the leaf base and smaller and squarer on the leaf margins, with thick walls and small to medium trigones. **Underleaves** similar to the leaves but slightly smaller, to about 1 mm long, spreading from the stem at a small to large angle; cells similar to those in the leaves. **Oil bodies** ± globular, of grape-cluster type, slightly brownish in transmitted light, 0–several per cell. **Surfaces** of stem, leaves and underleaves striolate, the striolae becoming shorter in the leaf and underleaf lobes. Androecia and gynoecia not seen.

Habitat: Generally, on soil in damp or boggy situations in montane to alpine areas. In West Tyers River, on soil in niches on a boulder in the river at about 730 m asl (Fig. 2).

Known distribution: Tasmania, Victoria (Fig. 3); also New Zealand, South America.

Similar taxa

Triandrophyllum subtrifidum outwardly resembles species of *Isotachis* Mitt., *Herberta* Gray and *Isolembidium*, and *Clasmatocolea inflexispina* (Hook.f. & Taylor) Engel. But species of *Isotachis* and *Herberta*, as well as *Clasmatocolea inflexispina*, have only 2-lobed leaves and underleaves, and *Isolembidium anomalum* (Rodw.) Grolle, known from Tasmania, has unlobed leaves and underleaves.

Triandrophyllum heterophyllum (Steph.) Grolle is a tropical species known from Java and New Guinea. It is a smaller plant with a purplish tinge, and the leaves are alternately 2-lobed and 3-lobed, with the lobe tips often ending in a uniseriate row of up to 4 cells (Piippo 1984). *Triandrophyllum symmetricum* Engel, known from a single site in New Zealand, has markedly symmetrical leaves and underleaves with 3 or 4 lobes, and the margins of the leaf bases are often armed with small teeth (Engel 1999).

Of the other South American taxa, *T. subtrifidum* var. *trifidum* has a few small spines on the margins of leaves and under-

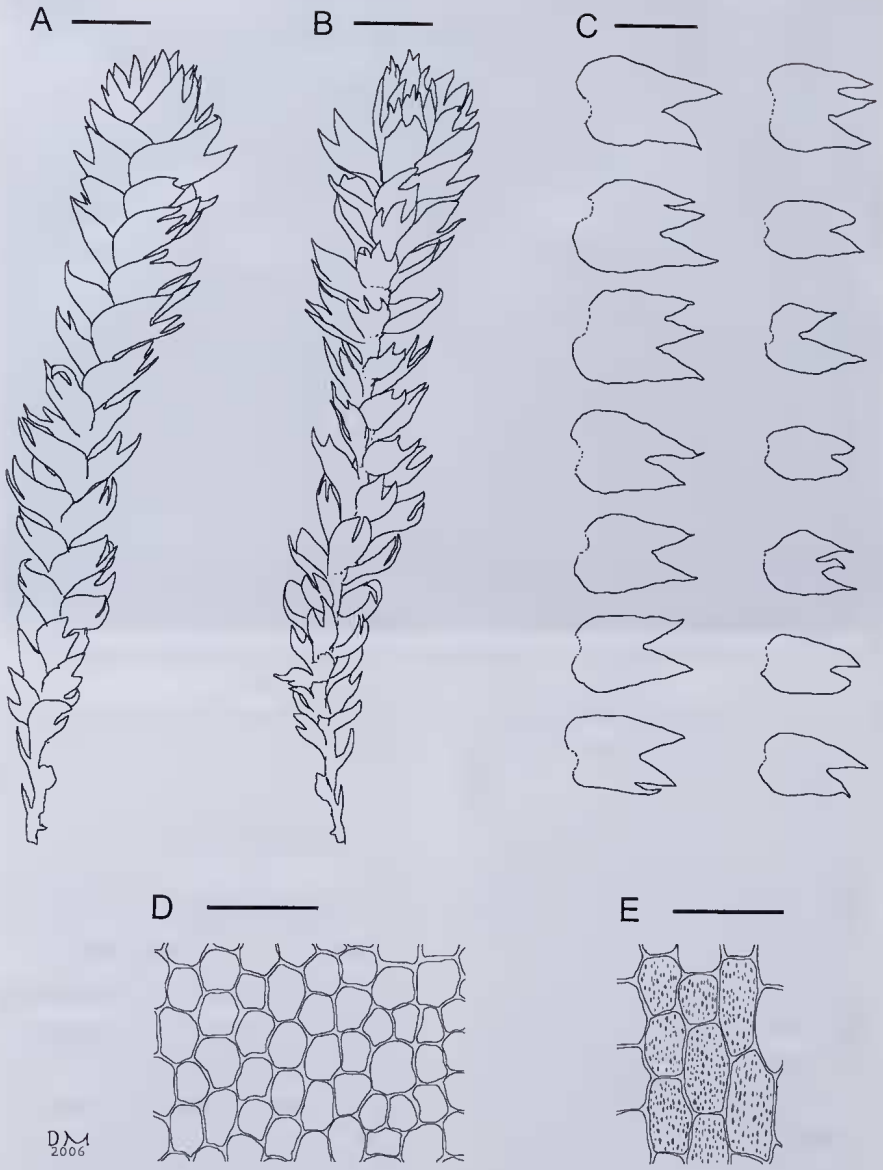

Fig. 1. *Triandrophyllum subtrifidum* var. *subtrifidum*. **A.** Moist shoot (dorsal view). **B.** Moist shoot (ventral view). **C.** Leaves (left) and underleaves (right). **D.** Cells in mid-leaf. **E.** Cells in leaf base, showing striolae. Scale bars: A–C = 1 mm, D–E = 100 µm. All drawn from Meagher 06-011 (MELU).

leaves, *T. fernandeziense* (S. Arnell) Grolle ex Fulf. & Hatch. has very spiny underleaves and a few spines on the leaf margins, and *T. georgiense* (Steph.) Fulf. & Hatch. has constantly 2-fid leaves and underleaves (Fulford 1963).

Conservation status

A search in Australian herbaria for *Triandrophyllum subtrifidum* among other species that might be confused with it found no additional collections. It therefore appears to be extremely rare in Australia.

The Victorian site is within Tanjil State Forest, Special Protection Zone 481/01 (DSE 2004), in a Rainforest Site of Significance CH30 (Peel 1999). The construction of a road bridge over the West Tyers River, close to the site, could have an impact on the population, as well as populations of two other significant bryophytes at the site, *Calomnion complanatum* (Hook.f. & Wilson) Lindb. (listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*) and *Treubia tasmanica* R.M.Schust. & G.A.M.Scott (a very rare species in Victoria; DSE 2006).

Under the existing IUCN guidelines for assessing the conservation status of bryophytes (Hallingbeck et al. 2000), *Triandrophyllum subtrifidum* var. *subtrifidum* should be classified as VU (vulnerable) in Victoria and Australia (criterion D, subcriteria D1 and D2). At the time of writing it had been nominated for listing as a threatened species in Victoria under the Flora and Fauna Guarantee Act.

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Fig. 3. Known distribution of *Triandrophyllum subtrifidum* in Australia.

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